REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1 to 14 and 17.

With regard to the alleged spelling error in claim 11, "stabilisers" is the correct British spelling. British English spelling is acceptable. See MPEP 608.01 (page 600-67), left column.

Claims 1, 2, 4 to 14 and 17 have been rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Daly (U.S. 6,294,610).

This rejection is respectfully traversed.

The present invention relates to thermoset powder compositions designed to coat heat sensitive substrates to produce a low gloss coating with improved hardness and weatherability. The compositions comprise a co-reactable mixture of glycidyl functional (e.g. epoxy) acrylic copolymer, carboxy functional acrylic copolymer, carboxy functional polyester and a catalyst where at least one of these polymers has a low T_g component (T_g from -50°C to + 40°C).

Turning to the rejection, certain important features of the present claims are not taught by Daly. To pick one example, the contention that the (lower) M_w range for the glycidyl copolymers of Daly overlaps with the (higher) M_n ranges for the glycidyl copolymers of the present invention is simply incorrect.

For a given polymer, the M_w value is higher than its corresponding M_n (this is self-evident as polydispersity is conventionally calculated as M_w / M_n and for any polymeric material polydispersity is >1). Therefore, in reality a skilled reader of Daly will understand that the glycidyl copolymers described therein (which are a polydisperse mixture) will have an average M_n within a range much lower than that given for their average M_w. Daly teaches an upper limit of molecular weight for the glycidyl copolymer of $M_w = 2000$. An art-skilled reader would know that this corresponds to polymers having an $\mathbf{M_n}$ much less than 2000 (which is the lower limit of M_n for glycidyl copolymers of the present invention).

In any event, Daly does not teach the combination of the glycidyl functional acrylic copolymer with both (B) a carboxy functional polyester and (C) a carboxy functional acrylic copolymer. Instead, Daly teaches that (B) and (C) are alternative embodiments of a carboxy functional polymer that may be blended with an epoxy resin.

"*...and a carboxylic acid functional polymer, such as a carboxylic acid functional polyester resin* ***or*** *a carboxylic acid functional acrylic resin.*" (See Daly col. 2, lines 51 to 53, emphasis added).

This is confirmed by the only two examples of Daly (Examples 1 and 2) which are powder compositions that consist of 90 parts of carboxy functional polyester (only) with 10 parts of an epoxy resin (TGIC).

Furthermore, there is no teaching in Daly (other than these two examples) of the amounts of each polymer component that should be used in the powder composition. For example, there is no teaching anywhere in Daly of compositions that comprise **5 to 50** weight percent of a carboxylic acid functional acrylic copolymer component that could be equivalent to component of (iii, C) of the present invention.

Finally, it is a requirement in claim 1 of the present invention that: "*at least one of the low glass transition temperature polymers (A'), (B') and (C') is present in the composition.*" Yet each of A', B' and C' have a T_g in the range from -50°C to + 40°C. However, Daly teaches that each of the polymer components described therein have a T_g above 40°C, preferably much higher (see col. 4, lines 25 to 27 and lines 41 to 42, and col. 5, lines 40 to 41 and lines 51 to 53).

Therefore, Daly does not describe powder compositions with each of the elements of the present invention and therefore it is apparent that presently pending claims 1 to 14 and 17 are all novel over Daly.

With regard to the rejection under 35 U.S.C 103(a) over Daly, as discussed above, contrary to the assertions of the Official Action, the correct M_n molecular weight ranges for the glycidyl copolymers of Daly and the present invention not only do not overlap, but are not close. Furthermore, the teaching of Daly does not suggest to an art-skilled man to formulate a powder composition using <u>both</u> a carboxy functional polyester <u>and</u> a carboxy functional acrylic copolymer nor if he were to do so, what amounts might be used.

Although Daly is concerned with the same problem as the present invention (providing low gloss powder coatings to heat sensitive substrates), Daly attempts to solve this problem in a very different way by using specific cure catalysts in otherwise conventional powder formulations. A reader of Daly is taught away from curing powders with conventional catalysts and would therefore have no motivation to modify the properties of the polymer components to improve low temperatures using conventional thermosetting catalysts.

There is no appreciation in Daly of the advantages of using at least one additional component that has a low T_g (in the range of -50°C to + 40°C) and no reason that a reader would add such components. The assertion of the rejection that in the present invention the same polymer can be both the high and low T_g component is untenable since the present invention requires that they are separate and Daly does not teach the use of two components for the glycidyl copolymer of the carboxy containing copolymer (whether it is present as the polyester or the acrylic alternatives).

The rejection is using impermissible hindsight to derive the present invention from Daly. To arrive at the present invention a reader would have to contradict the teaching of Daly by formulating with two carboxy functional components stated to be alternates, would then have to ignore further teaching and select such components with higher molecular weights than given in Daly and finally decide to add at least one separate low T_g component to the powder despite no teaching or motivation from Daly to do so.

Further differences between Daly and the present invention are discussed in the published version of the present application (U.S. 2006-0166001 A1, paragraph [0007]).

Thus the present invention is non-obvious from Daly.

Claims 1, 2, 4 to 14 and 17 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Daly in view of Pettit (U.S. 5,202,382).

This rejection is also respectfully traversed.

It is considered that the rejection is based on hindsight to arrive at the present invention by arbitrarily combining and importing features from multiple references to arrive at the present invention rather than following the inherent teaching of the cited documents.

Starting from Daly

As pointed out above, a reader of Daly would have no motive to modify the powders it describes e.g. to add an additional separate low T_g component. So there would be no reason for a reader of Daly to cross-reference another document to import this feature.

Starting from Pettit

Pettit is concerned with a different problem than low temperature cure (see Pettit, col. 1, line 66 to col. 2, line 6). An art-skilled person wishing to formulate thermosetting powders that will provide low gloss coatings to coat heat sensitive substrates would be taught directly away

from consulting Pettit as, for example, the only coating Examples 1 to 6 of Pettit describe powders that are coated onto steel panels which "*were baked at 177°C to form hard glossy coatings.*" (See col. 11, lines 67 to 68 and col. 12, lines 51 to 52).

Although Pettit teaches use of a mixture of high and low T_g acid functional polymers, it does not specifically disclose the use of carboxy functional polyesters nor use of a combination of carboxy functional polyesters and carboxy functional acrylic polymers, each of which may comprise both a low T_g and a high T_g component. Pettit mentions in passing, that acid functional polyesters (col. 4, lines 37 to 42) and polyepoxide curing agents (col. 5, lines 28 to 66) may be added to the powder but is silent about the T_g of such optional components.

If a reader of Pettit were to modify the powder compositions described therein, they would do so to solve the problem addressed by Pettit of improved appearance, flexibility, hardness and resistance. The examples of Pettit actually teach directly away from formulating powders which are of low gloss and low temperature cure.

Similar a reader of Pettit would have no reason to cross-reference Daly which solves a different problem.

Thus the present invention is non-obvious over Daly and Pettit however combined.

Claim 3 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Daly or Pettit in view of Murakami (U.S. 4,499,239).

This rejection is also respectfully traversed.

The rejection is again based on an impermissible hindsight reconstruction of the present invention by selecting unrelated disclosures from different documents.

It is considered that Murakami fails to overcome the above-discussed deficiencies of Daly and Pettit. For the reasons given above, the present invention is non-obvious from the combination of Daly and Pettit, however combined, in view of Murakami.

In more detail, a person skilled in the art wishing to provide low gloss and low temperature cure powders would simply not additionally refer to Murakami which relates to a completely different problem of improving physical properties for powder coatings (coated on steel cured at 180°C for 20 minutes, see Example 1, col. 7, line 23).

Similarly, if one were to start with Murakami, a reader would have no reason to cross-reference Daly, a document which solves a different problem from that of Murakami.

Murakami describes powders that consist essentially of a polyester resin with a softening point of 80°C to 150°C (i.e. high T_g) and a glycidyl containing acrylic polymer. Murakami therefore teaches directly away from formulating with additional ingredients and there is even less incentive for a reader of Murakami to consult other references describing powder formulations with different or additional components. There is no credible reason why a reader of Murakami would modify the powders described therein to arrive at the present invention.

For the foregoing reasons, it is considered that the rejections on prior art are untenable and should be withdrawn.

During examination of the corresponding European application EP 15692017-A (= WO 04/041943) the EPO asked applicants to provide an English translation of one of the Japanese references (JP 57-205458 (1982)) (Dainippon) that was cited in the ISR. For completeness, enclosed is a copy of this English translation and the Japanese original, with PTO-1449.

The other references cited in the ISR (JP 09-221612-A and EP 1184431 (= U.S. 6,407,181) have already been considered.

Novelty over Dainippon

Dainippon discloses a resin for powder paint containing: a glycidyl functional acrylic polymer (confusingly labeled 'B' not 'A' as in the present invention); an acid functional polyester (confusingly labeled 'A' not 'B' as in the present invention); and a carboxyl functional acrylic polymer. However, Dainippon does not suggest any T_g values for these components. Instead, Dainippon teaches that the polyester with acid value of 20 to 200 mg KOH/g must have a softening point of 80 to 150°C, preferably 100 to 130°C, (and the only exemplified polyesters i.e. Composite Examples 1 and 2, have softening points of 126°C and 105°C respectively).

There is no suggestion in Dainippon that the powder paints therein contain a low T_g component (T_g from -50°C to + 40°C). Therefore, the present claims are novel over this reference.

Non-obviousness over Dainippon

The present claims are also unobvious over this reference. Although there is a brief reference to the possible use of catalysts (see page 4, col. 2, lines 35 to 37 of the translation), in general, Dainippon does not teach that they are an essential element of the powder paints described.

Dainippon addresses the problem of improving weatherability and other physical properties of a powder paint. There is no teaching in Dainippon that low gloss and low temperature cure are desirable properties in a powder and the examples of Dainippon are not designed to be applied to heat sensitive substrates. For example, in the three coating examples given in Dainippon the "*powdered paint is applied to a mild steel sheet and is baked at 180°C for 20 minutes to obtain a coating film.*" (See page 6, col. 1, lines 16 to 18 of the translation). Thus an art-skilled person wanting to solve the problem addressed by the present invention would have no reason to consult Dainippon.

In any event, there is no motivation in Dainippon to use a low T_g component. The softening points required for the acid functional polyester teach a reader away from using such polyester with a low T_g in the low range of -50°C to + 40°C. By analogy, a reader of Dainippon would similarly be deterred from selecting either of the other two polymer components with a low T_g.

An Information Disclosure Statement citing this reference is enclosed.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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